

Mineral Industry Surveys

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TIN IN FEBRUARY 1998

Domestic consumption of primary tin in February was estimated by the U.S. Geological Survey to be 3% above that in January 1998 and 10% below that in February 1997.

The Platt's Metals Week average composite price for tin in February was \$3.60 per pound, 1% higher than that in January 1998 and 9% below that in February 1997.

The current status of domestic steel can recycling is reviewed in an article focusing on Bethlehem Steel Corp.'s Sparrows Point, MD, plant, one of the country's largest steel plants and now also one of the major users of recycled tin cans for its scrap steel needs (New Steel, 1998b). The Sparrows Point facility uses 20,000-25,000 tons of old steel cans annually in its Basic Oxygen Furnaces (BOF's). The plant has melted an average of 2,000 tons of cans per month for the last 3 years. Bethlehem emphasizes that a prime grade of steel is required to make a steel can, and because the can steel is low-alloy-bearing material, it does not present alloy problems during the melt, as problematical elements are low in content. AMG Resources Corp.'s Baltimore operation is the main supplier of old steel cans to Sparrows Point. AMG buys the cans from area material recovery facilities (MRF's). AMG compresses the cans into 16- or 20- inch square bales, depending on the customer's requirements. It will also detain the steel can for an additional cost. The article made the following points:

- a) About 75% of domestic steel mills use recycled steel cans in their melt-shop charges.
- b) In 1996, the United States recycled nearly 19 billion steel cans, including food, paint, and aerosol cans. The amount of steel recovered from those cans totaled more than 1.6 million tons.
- c) In 1996, steel cans were recycled at a rate of 58%, compared with 56% in 1995, and 15% in 1988.
- d) The steel can's reliable, consistent, and homogeneous chemistry makes it an ideal furnace charge. Steel cans are usually composed of type L steel, a mild, low-carbon steel.
- e) A major deterrent to the use of more steel cans as a furnace charge is their fluctuating cost.
- f) When old steel cans first began to be used as a furnace charge in the late 1970's, the industry was concerned about the

possible deleterious effect of the tin coating on steel produced. But the tin content of used steel cans is now lower than it was then, partly because the steel mills have reduced the tin coating thickness on the tin-plate used as a feedstock to make cans; and partly because the steel can product mix now includes tin-free-steel (TFS), which has only a light chromium coating on the surface. There is currently about four pounds of tin per ton of steel cans, less than 0.2% by weight.

- g) Usually, in the charge for a BOF or Electric Arc Furnace, old steel cans are blended with other scrap. In a typical BOF, only one or two tons of steel cans is included in a 50-ton scrap charge.
- h) Foundries also use old tin cans as an additive and welcome the small amount of tin since it is a cost saving alternative to copper for stabilizing pearlite. Pearlite improves yield and tensile strengths.

In Japan, the country's second largest steel producer, NKK Corp., announced the start-up of production of a laminated steel sheet for a new type of two-piece beverage can. To produce the coils of sheet, NKK spent \$54 million to install a laminated-sheet facility and modify the No. 2 tin-free-steel line and other equipment at its Fukuyama Works. The tin-free line has a capacity of 15,000 tons per month. The laminated-sheet facility coats both sides of the tin-free sheet with a polyester film. The line processes sheet up to 1,240 millimeters (49.6 inches) wide. NKK states that the laminated film preserves the flavor of beverages, and is also an environmentally friendly product since neither lubricants nor cooling agents are used in the forming process. The coils of sheet are shipped to Toyo Seikan Kaisha, Japan's largest can maker, to make a product it calls "The Toyo Ultimate Can (TULC)." This new product competes with traditional tin cans (New Steel, 1998a).

In China, the country's major tin producer, Yunnan Tin Corp., announced plans to increase 1998 production by 2,000 tons over 1997 output, to about 25,000 tons annually. Yunnan Officials claimed current capacity to be 30,000 tons per year (Platt's Metals Week, 1998a).

In Peru, the country's only tin producer, Minsur, announced that

it would end the tolling of its tin concentrates at ENAF's Vinto tin smelter in Bolivia. It was believed that Minsur was shipping about 4,000 tons of tin-in-concentrate yearly to Vinto, accounting for about 30% of Vinto's total feed. Minsur plans to redirect that material to the Thaisarco smelter in Thailand and the Malaysia Smelting Corp. (MSC) smelter in Malaysia. Minsur forecast a 1998 refined tin output of 27,000 tons, about the same as in 1997. Two-thirds of this will come from its own Pisco smelter, (50% more than the 12,000 tons it smelted there in 1997); the remaining third, about 9,000 tons, will be tolled at Thaisarco and MSC. About 60% of Minsur's refined tin goes to the American market, 30% to Europe, and 10% to South America (Platt's Metals Week, 1998b).

Update

On April 9, 1998, the Platt's Metals Week composite price for tin was \$3.81 per pound.

References Cited

- New Steel, 1998a, NKK produces sheet for new steel can: New Steel, v. 14, no. 2, February, p. 16.
———1998b, the growth of steel-can recycling: New Steel, v. 14, no. 2, February, p. 54-56.
Platt's Metals Week, 1998a, China Yunnan Tin to up output: Platt's Metals Week, v. 69, no. 3, p. 7.
———1998b, Minsur ends tolling at Vinto: Platt's Metals Week, v. 69, no. 1, p. 10.

TABLE 1
SALIENT TIN STATISTICS 1/

(Metric tons, unless otherwise noted)

	1997 p/	1998		
		January	February	January-February
Production, secondary e/ 2/	10,800	900	900	1,800
Consumption:				
Primary	37,200	3,310 r/	3,420	6,720
Secondary	11,000	1,100 r/	1,080	2,180
Imports for consumption, metal	40,600	2930	NA	NA
Exports, metal	4,360	382	NA	NA
Stocks at end of period	6,100	5,570 r/	5,550	XX
Prices (average cents per pound): 3/				
Metals Week composite 4/	381.49	356.22	359.54	XX
Metals Week New York dealer	264.45	245.41	247.06	XX
London, standard grade, cash	256.00	236.00	237.00	XX
Kuala Lumpur	252.24	232.70	236.44	XX

e/ Estimated. p/ Preliminary. r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to three significant digits, except prices.

2/ Comprises tin recovered from alloys and tinplate. The detinning of tinplate (coated steel) yields only a small part of the total.

3/ From Platt's Metals Week.

4/ The Metals Week composite price is a calculated formula, not a market price, that includes fixed charges, finance charges, and a risk factor. It normally is substantially higher than other tin prices.

TABLE 2
METALS WEEK COMPOSITE PRICE 1/

(Cents per pound)

Period	High	Low	Average
1997 (annual)	404.19	360.46	381.49
1997:			
February	403.46	390.40	395.64
March	401.81	389.32	395.64
April	393.82	380.00	386.55
May	393.67	378.72	386.59
June	384.93	374.20	377.81
July	375.61	362.36	370.10
August	377.46	362.60	369.01
September	384.65	362.91	372.60
October	400.12	366.51	377.39
November	387.04	363.84	378.42
December	390.56	360.46	371.93
1998:			
January	365.56	350.73	356.22
February	364.00	355.20	359.54

1/ The Metals Week composite price is a calculated formula, not a market price, that includes fixed charges, finance charges, and a risk factor. It normally is substantially higher than other tin prices.

Source: Platt's Metals Week.

TABLE 3
TINPLATE PRODUCTION AND SHIPMENTS IN THE UNITED STATES 1/

(Metric tons, unless otherwise noted)

Period	Tinplate waste (waste, strips, cobble, etc.) (gross weight)	Tinplate (all forms)		Tin per metric ton of plate (kilograms)	Shipments 2/
		Gross weight	Tin content		
1997 p/	157,000	2,010,000	9,300	4.6	2,480,000
1997:					
December	11,300	152,000	705	4.6	228,000
1998:					
January	16,000	180,000	747	4.1	198,000
February	15,500	178,000	797	4.5	NA

p/ Preliminary. NA Not available.

1/ Data are rounded to three significant digits.

2/ Shipments data from American Iron and Steel Institute monthly publication AIS10.

TABLE 4
U.S. TIN IMPORTS FOR CONSUMPTION AND EXPORTS 1/

(Metric tons)

Country or product	1997 p/	1997 December	1998 January
Imports:			
Concentrates (tin content):			
Canada	20	--	--
Japan	37	--	--
Total	57	--	--
Metal (unwrought tin):			
Bolivia	6,680	746	482
Brazil	8,610	421	702
Chile	464	--	--
China	4,710	132	466
Hong Kong	258	--	200
India	1,720	--	120
Indonesia	7,610	820	360
Malaysia	1,640	57	113
Netherlands	200	--	--
Peru	6,610	310	162
Russia	480	--	--
Thailand	600	--	180
Other	1,010	185	140
Total	40,600	2,670	2,930
Other (gross weight):			
Alloys	3,870	69	229
Bars and rods	1,060	67	136
Foil, tubes, and pipes	2	(2/)	(2/)
Plates, sheets, and strip	186	10	4
Waste and scrap	1,960	87	125
Miscellaneous	1,590	161	76
Total	8,670	394	570
Exports (metal)	4,360	294	382

p/ Preliminary.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 5
CONSUMPTION OF TIN IN THE UNITED STATES, BY FINISHED PRODUCT 1/

(Metric tons of contained tin)

Product	1997 p/	1998						January-February total
		January			February			
		Primary	Secondary	Total	Primary	Secondary	Total	
Alloys (miscellaneous)2/	424	28 r/	--	28 r/	26	--	26	54
Babbitt	149	17 r/	W	17 r/	19	W	19	36
Bar tin and anodes	64	W	--	W	W	--	W	W
Bronze and brass	1,790	107 r/	102 r/	209 r/	105	116	221	430
Chemicals	7,530	671	W	671	671	W	671	1,340
Collapsible tubes and foil	288	22	W	22	24	--	24	46
Solder	6,150	702 r/	408 r/	1,110 r/	743	386	1,130	2,240
Tinning	709	45 r/	--	45 r/	49	--	49	94
Tinplate3/	9,160	747	--	747	797	--	797	1,540
Tin powder	192	W	W	W	W	--	W	W
White metal 4/	W	W	--	W	W	--	W	W
Other	4,900	68 r/	85	153 r/	82	81	163	315
Total reported	31,400	2,410 r/	595 r/	3,000 r/	2,520	583	3,100	6,100
Estimated undistributed consumption 5/	16,800	900	500	1,400	900	500	1,400	2,800
Total	48,200	3,310 r/	1,100 r/	4,400 r/	3,420	1,080	4,500	8,900

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includesterne metal.

3/ Includes secondary pig tin and tin acquired in chemicals.

4/ Includes pewter, britannia metal, and jewelers' metal.

5/ Estimated consumption of plants reporting on an annual basis.

TABLE 6
DEFENSE LOGISTICS AGENCY
TIN STOCKPILE DISPOSALS 1/

(Metric tons)

Period	Monthly disposals 2/
1997:	
February	200
March	115
April	60
May	200
June	60
July	210
August	220
September	45
October	45
November	35
December	--
Total	1,410
1998:	
January	20
February	210
Total	230

1/ Data are rounded to three significant digits, may not add to totals shown.

2/ These disposals represent only the daily, spot sales program. They do not include the long-term dealer contract sales program.

Source: Defense Logistics Agency.